

METHOD AND SYSTEM FOR DETERMINING OVERLAY TOLERANCE

ABSTRACT

A method and system for determining overlay tolerances. The method comprises the
5 steps of exposing wafers at different critical dimensions (preferably, above, below, and
at optimum image size); and varying the overlay across each wafer, preferably by
intentionally increasing the magnification. Functional yield data are used to determine
the overlay tolerance for each of the image sizes. The present invention, thus, studies
the interaction of image size and feature misalignment. Prior to this invention, the only
10 way to attain this information was to process a large number of lots and create a trend of
image size and alignment vs. yield. The present invention solves the problem by
determining the overlay tolerance based on yield data from a single lot. The design can
then be altered or the overlay limit can be tightened (or relaxed) based on failure analysis
of the regions/features that are most sensitive to misalignment.